

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
27 May 2004 (27.05.2004)

PCT

(10) International Publication Number
WO 2004/044248 A1

(51) International Patent Classification⁷: C21B 7/24

(21) International Application Number: PCT/US2003/036057

(22) International Filing Date: 12 November 2003 (12.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/425,530 12 November 2002 (12.11.2002) US

(71) Applicant (*for all designated States except US*): AUTOMATION INTELLIGENCE, LLC [US/US]; P.O. Box 210066, Milwaukee, WI 53221 (US).

(72) Inventor; and

(75) Inventor/Applicant (*for US only*): BRAZIUNAS, Vytas [US/US]; 2530 West Parnell Avenue, Milwaukee, WI 53221 (US).

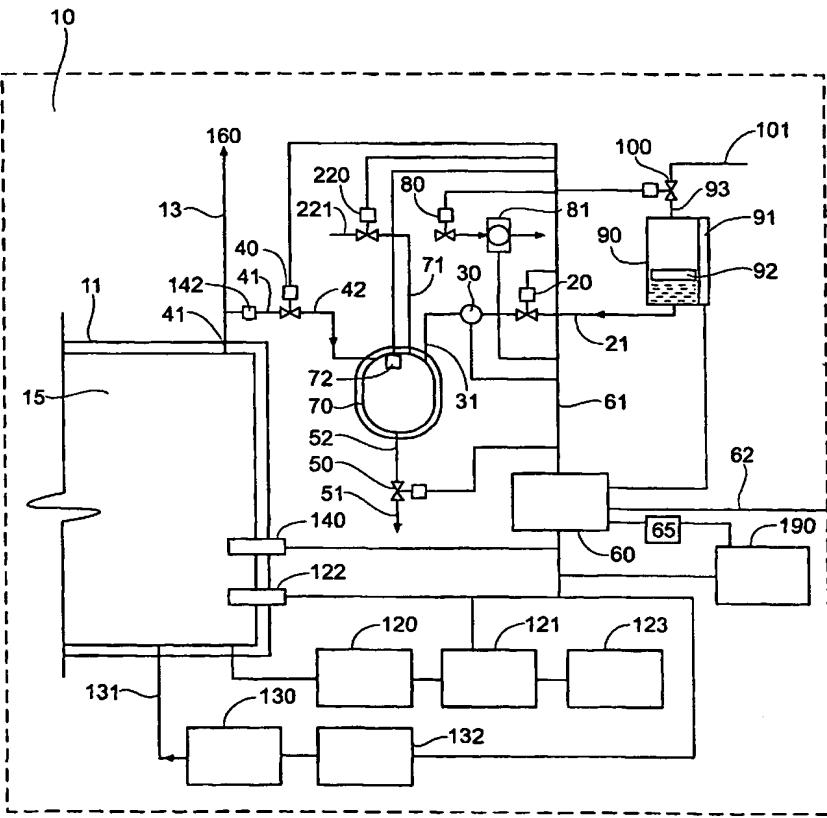
(74) Agents: RYAN, Daniel, D. et al.; Post Office Box 26618, Milwaukee, WI 53226 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: SYSTEMS AND METHODS FOR CONTROLLING HEAT TREATING ATMOSPHERES AND PROCESSES BASED UPON MEASUREMENT OF AMMONIA CONCENTRATION



(57) Abstract: Systems and methods for determining an ammonia content of an ammonia-based atmosphere. The systems and methods provide a measurement vessel (70). The systems and methods provide an ammonia-based atmosphere conveyed into the measurement vessel (70). The systems and methods provide water conveyed into the measurement vessel (70), with the water causing dissociation of the ammonia from the atmosphere within the measurement vessel (70). The systems and methods measure a flow rate of water into the measurement vessel (70) during the dissociation. The systems and methods determine the ammonia content in the atmosphere based, at least in part, upon the flow rate of water.



Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.